

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claim 21 in accordance with the following:

1. (PREVIOUSLY PRESENTED) A collimating lens to transform a ray of light from a light source into approximate parallel rays, comprising:

the collimating lens made of a single lens of plastic, the single lens having a refraction surface provided on one side and a diffraction surface provided on an opposite side, wherein a power of the diffraction surface is larger than a power of the refraction surface.

2. (ORIGINAL) The collimating lens as claimed in claim 1, wherein the collimating lens and the diffraction surface of the collimating lens have a positive power.

3. (ORIGINAL) The collimating lens as claimed in claim 1, wherein the refraction surface and the diffraction surface have a power to satisfy a condition of:

$$-3 \leq \frac{K_d}{K_r} \leq -2$$

where, K_d is a power of the diffraction surface, and K_r is a power of the refraction surface.

4. (ORIGINAL) The collimating lens as claimed in claim 3, wherein the refraction surface and the diffraction surface have the powers to satisfy a condition of:

$$\frac{K_d}{K_r} = -\frac{(2n + (n+1)(n^2 + 2))}{4n}$$

where, K_d is the power of the diffraction surface, K_r is the power of the refraction surface, and n is an index of refraction of the plastic that constitutes the collimating lens.

5. (ORIGINAL) The collimating lens as claimed in claim 1, wherein at least one of the

refraction surface and the diffraction surface is provided as a non-spherical surface.

6. (WITHDRAWN) An optical scanning apparatus to project a ray of light from a light source towards a predetermined direction and to converge the ray of light on a photosensitive medium, the optical scanning apparatus comprising:

a collimating lens to transform the ray of light from the light source into parallel rays and provided of a single plastic lens that has a refraction surface provided on one side and a diffraction surface provided on an opposite side, where a power of the diffraction surface is larger than a power of the refraction surface;

a cylindrical lens to converge a light component from the collimating lens, in a sub-scanning direction into a linear ray of light in a main-scanning direction;

a light deflector to deflect the linear ray from the cylindrical lens; and

an $f-\theta$ lens to converge the reflected ray of light from the light deflector onto the photosensitive medium.

7. (WITHDRAWN) The optical scanning apparatus as claimed in claim 6, wherein the collimating lens and the refraction surface of the collimating lens have a positive power.

8. (WITHDRAWN) The optical scanning apparatus as claimed in claim 6, wherein the refraction surface and the diffraction surface have powers to satisfy the condition of:

$$-3 \leq \frac{K_d}{K_r} \leq -2$$

where, K_d is the power of the diffraction surface, and K_r is the power of the refraction surface.

9. (ORIGINAL) The collimating lens as claimed in claim 1, wherein the refraction surface and the diffraction surface have powers to satisfy a condition of;

$$\frac{K_d}{K_r} = -\frac{(2n + (n+1)(n^2 + 2))}{4n}$$

where, K_d is the power of the diffraction surface, K_r is the power of the refraction surface, and n is an index of refraction of the plastic that constitutes the collimating lens.

10. (CANCELLED)

11. (ORIGINAL) The collimating lens as claimed in claim 1, wherein both the refraction surface and the diffraction surface are provided as non-spherical surfaces.

12. (WITHDRAWN) The collimating lens as claimed in claim 6, wherein at least one of the refraction surface and the diffraction surface is provided as a non-spherical surface.

13. (WITHDRAWN) The collimating lens as claimed in claim 6, wherein the refraction surface and the diffraction surface have powers to satisfy a condition of:

$$\frac{K_d}{K_r} = -\frac{(2n + (n + 1)(n^2 + 2))}{4n}$$

where, K_d is the power of the diffraction surface, K_r is the power of the refraction surface, and n is an index of refraction of a material that constitutes the collimating lens.

14. (WITHDRAWN) An optical scanning apparatus, comprising:
a light source from which a ray of light is projected via the optical scanning apparatus;
a collimating lens to modify a ray of light from a light source to cause the ray of light to become parallel, the collimating lens being made of a single lens and having a refraction surface provided on one side and a diffraction surface provided on an opposite side, where a power of the diffraction surface is larger than a power of the refraction surface;
a diaphragm to limit a luminosity of the lights converged on the collimating lens;
a cylindrical lens to converge the linear ray components from the collimating lens, thereby creating a linear light in a main-scanning direction;
a light deflector to deflect light from the cylindrical lens towards a photosensitive medium at a constant speed; and
an f-θ lens to converge reflected ray of light from the light deflector onto the photosensitive medium.

15. (PREVIOUSLY PRESENTED) A collimating lens to prevent variation of focal distance, comprising:
a refraction surface provided on one side; and

a diffraction surface provided on an opposite side, wherein the refraction and diffraction surfaces prevent a power of the collimating lens from changes due to a change in temperature, where a power of the diffraction surface is larger than a power of the refraction surface.

16. (ORIGINAL) The collimating lens as claimed in claim 15, wherein at least one of the refraction surface and the diffraction surface is provided as a spherical surface.

17. (ORIGINAL) The collimating lens as claimed in claim 1, wherein at least one of the refraction surface and the diffraction surface is provided as a spherical surface.

18. (PREVIOUSLY PRESENTED) The collimating lens as claimed in claim 3, wherein the diffraction surface has positive power and the power of the diffraction surface is larger than the power of the refraction surface by a difference which satisfies the condition of:

$$-3 \leq \frac{K_d}{K_r} \leq -2$$

where, K_d is the power of the diffraction surface, and K_r is the power of the refraction surface.

19. (ORIGINAL) The collimating lens as claimed in claim 15, the collimating lens is made of a single lens.

20. (ORIGINAL) The collimating lens as claimed in claim 15, the collimating lens is made of at least one plastic lens.

21. (CURRENTLY AMENDED) A collimating lens made of a single lens to prevent variation of a focal distance, comprising:

a refraction surface provided on one side; and

a diffraction surface provided on an opposite side, where a power variation of the refraction surface is offset by a power variation of the diffraction surface by adjusting a power of the diffraction surface relative to a power of the refraction surface and the refraction surface is provided closer to a light source than the diffraction surface.